~~Patent claims~~
What is claimed is:

1. ~~A method for adjusting the tilting of a~~ broadband optical signal (OS_E, λ_B, λ_R), transmitted via an optical conductor (LW), by feeding in at least two pump signals (PS1 or PS2) of different wavelengths (λ_B, λ_R), characterized in that a first pump signal (PS1) with a wavelength (λ_B) less than the minimum wavelength (λ_{MI}) of the optical signal (OS) is fed in, in that a second pump signal (PS2) which has a wavelength (λ_R) greater than the maximum wavelength (λ_{MA}) of the optical signal (OS) is fed in which pump signal has a different wavelength spacing relative to the mean wavelength of the optical signal (OS) than the first pump signal (PS1), and in that the wavelength and levels of the pump signals (PS1 or PS2) are selected such that the optical signal (OS_E, λ_B, λ_R) has the desired tilting.

2. A method for adjusting the tilting of a broadband optical signal (OS_E), transmitted via an optical conductor, by feeding in pump signals, characterized in that a pump signal (PS) is fed in whose wavelength (λ_R) is greater than the maximum wavelength (λ_{SMA}) of the optical signal (OS_E) and whose wavelength and level are selected such that the optical signal (OS_E, λ_B, λ_R) has the desired tilting for a prescribed change in level.

3. The method as claimed in claim 2, characterized in that at least one further pump signal (PS3) is fed in whose wavelength (λ_{L3}) is likewise greater than the maximum wavelength (λ_{SMA}) of the optical signal (OS_E).

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4. A method for adjusting the tilting in the case of optical signal transmission via an optical conductor (LW), in which a plurality of pump signals (PS1, PS2) are fed into the optical conductor (LW), characterized in that a plurality of transmission bands (λ_B, λ_R) are transmitted via the optical conductor, in that the signal levels of the transmission bands (λ_B, λ_R) are measured, and in that in the event of a change, in particular in absence of, the signal level of at least one of the transmission bands (λ_B, λ_R) at least one pump signal (PS1) is fed into the optical conductor (LW) and its level is adjusted such that the tilting of the at least one undisturbed transmission band (λ_R) remains at least virtually constant at the receiving end.

5. The method as claimed in claim 4, characterized in that at least one further pump signal (PS2, PS3) with a different pump wavelength (λ_{L2}, λ_{L3}) is fed in.

6. The method as claimed in claim 5, characterized in that a first pump signal (PS1) with a wavelength (λ_B) less than the minimum wavelength (λ_{MI}) of the transmission bands (λ_B, λ_R) is fed in, and in that a second pump signal (PS2) with a wavelength (λ_R) greater than the maximum wavelength (λ_{MA}) of the transmission bands (λ_B, λ_R) is fed in.

7. The method as claimed in claim 4, characterized in that the pump wavelength (λ_{L1}, λ_{L2}) of a pump laser (PL1, PL2) used to compensate an absent transmission band corresponds approximately to the mean wavelength thereof.

8. The method as claimed in one of the preceding claims 4 to 7,

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characterized in that in the event of absence of a transmission band (λ_B, λ_R) the levels of the pump signals (PL1, PL2, PL3) are adjusted very quickly on the basis of known required changes in power, and in that, if appropriate, the tilting and the signal level are readjusted.

9. The method as claimed in one of claims 4 to 8, characterized in that in each case the wavelength (λ_{L1}, λ_{L2}, λ_{L3}) and the level of the pump signal (PS) or the pump signals (PL1, PL2, PL3) are selected or adjusted such that the desired tilting occurs at least approximately for a desired level.

10. The method as claimed in one of the preceding claims, characterized in that in the case of undisturbed operation the tilting at the receiving end of the received optical signal (OS_E) or the transmission bands (λ_B, λ_R) is minimized by controlling the pump signals (PS1, PS2, PS3).

11. The method as claimed in one of the preceding claims, characterized in that the level of the received optical signal (OS_E) or the transmission band (λ_B, λ_R) is kept constant by individual control of the pump signals (PS1, PS2).

12. The method as claimed in claims 1 to 11, characterized in that the pump signals (PS1, PS2) are fed in at the receiving end of a transmission section (S, LW, R).

13. The method as claimed in claim 1 or 4 to 12, characterized in that in each at least one pump signal (PS1, PS2) is fed in at the transmitting end and receiving end.

14. The method as claimed in claims 5 to 11, characterized in that in the case of bidirectional transmission pump signals (PS1, PS2) are fed in at both ends of a transmission section (S, LW, R).

15. An arrangement for adjusting the tilting and the level of a broadband optical signal (OS_E) transmitted via an optical conductor (LW) and having at least two pump lasers (PL1, PL2) which feed pump signals (PS1, PS2) into the optical conductor (LW), characterized in that a first pump signal (PS1) with a wavelength (λ_B) less than the minimum wavelength (λ_{MI}) of the optical signal (OS) is fed in, in that a second pump signal (PS2) which has a wavelength (λ_R) greater than the maximum wavelength (λ_{MA}) of the optical signal (OS) is fed in which pump signal has a different wavelength spacing relative to the mean wavelength of the optical signal (OS) than the first pump signal (PS1), and in that the wavelength and levels of the pump signals (PS1 or PS2) are selected such that the optical signal (OS_E, λ_B, λ_R) has at least approximately the desired tilting and the desired level.

16. An arrangement for adjusting the tilting and the level in the case of optical signal transmission via an optical conductor (LW) having at least two pump lasers (PL1, PL2) which feed pump signals (PS1, PS2) into the optical conductor (LW), characterized in that a controller (ST) is provided which measures the signal levels of at least two transmission bands (λ_B, λ_R) and, in the event of a change in the signal level, in particular an absence of at least one transmission band (λ_B) adjust the power of the pump signals (PS1, PS2) such that the tilting in

the at least one undisturbed transmission band (λ_R) at the receiving end remains approximately constant.

17. The arrangement as claimed in claim 16, characterized in that pump lasers (PL1, PL2) are provided in the case of which the wavelengths of their pump signals (PS1, PS2) are selected such that, and their powers are adjusted such that the undisturbed transmission band (λ_R) has at least approximately the desired tilting and the desired level.

18. The arrangement as claimed in claim 16 or 17, characterized in that a controller (ST) is provided which, in the event of the absence of a transmission band (λ_B), adjusts the power of the pump lasers (PL1, PL2, PL3) very quickly on the basis of known required changes in power.

19. The arrangement as claimed in claim 18, characterized in that a controller (ST) is provided which after the power of the pump lasers (PL1, PL2, PL3) has been quickly adjusted, readjusts the tilting and/or the level of the undisturbed transmission bands (λ_R).

20. The arrangement as claimed in claim 17, 18 or 19, characterized in that a controller (ST) is provided which additionally adjusts the gain and/or tilting of an optical amplifier (V, D, V) in a transmitting part (S) ~~and/or in a receiving part (R)~~.

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